

## Section 8 – Air Quality Conformity

*2009-2035 Ashland Area Metropolitan Transportation Plan (MTP)*

# Conformity for Ashland Area MPO

### EXECUTIVE SUMMARY

This chapter explains the air quality analysis and methodology used by the Ashland MPO and the Kentucky Transportation Cabinet (KYTC) to demonstrate conformity with air quality standards/goals established by the Clean Air Act Amendments of 1990. Boyd County is in attainment with a maintenance plan for the 8-hour ozone standard and in nonattainment for the PM<sub>2.5</sub> annual standard. A portion of Lawrence County is in nonattainment for the PM<sub>2.5</sub> annual standard. Greenup County is in attainment of all standards and not subject to conformity.

Effective June 15, 2004, Boyd County, Kentucky was designated as nonattainment for the 8-hour ozone National Ambient Air Quality Standard (NAAQS). Further, the area was classified as basic (marginal) under Subpart 1 of the Clean Air Act. In a final rule published in the Federal Register on August 3, 2007, EPA approved the Kentucky portion of the Huntington-Ashland (Boyd County) 8-hour Ozone Maintenance Plan and the associated 2018 motor vehicle emissions budgets. Kentucky (Boyd County) has separate budgets from the rest of the WV-KY-OH 8-hour ozone area and can, therefore, determine conformity independently. Since Boyd County had existing 1-hour budgets, conformity was demonstrated based on comparisons to the 1-hour budgets (budget year 2005) for years between 2005 and 2018 and to the 8-hour budgets (budget year 2018) for years 2018 and later as allowed in the regulations.

Additionally, one FIVCO MPO county – Boyd County – and the non-MPO “donut” area in Lawrence County (**census block number 21-127-9901-6**) **make up the** Kentucky portion of the Huntington-Ashland, WV-KY-OH PM<sub>2.5</sub> annual standard nonattainment area. Since no budgets have been established, the entire tri-state nonattainment area must determine PM<sub>2.5</sub> conformity together.

The KYTC has completed the 8-hour ozone conformity analysis for Boyd County using the mobile emissions model MOBILE6.2. This analysis incorporates the latest planning assumptions, including all projects (and only these projects) listed in Appendix D Section 1. This analysis demonstrates 8-hour ozone conformity since the estimated emission totals are under the established Motor Vehicle Emissions Budgets (MVEBs) for each of the analysis years. A summary of results is shown in Appendix D.

Additionally, the Huntington-Ashland, WV-KY-OH tri-state PM<sub>2.5</sub> nonattainment area has demonstrated PM<sub>2.5</sub> conformity jointly since for each of the analysis years the emission totals are under the emissions for the established base year of 2002. The PM<sub>2.5</sub> joint conformity report executive summary is shown in Appendix E.

Based on these results, a positive air quality conformity finding for Boyd County has been requested. Following a positive conformity finding, the Statewide Transportation Improvement Program (STIP) will be updated to include these projects.

## **PLANNING ASSUMPTIONS FOR THE EMISSIONS MODEL**

The **planning assumptions for the emissions model** were agreed to by the IAC in the September 10, 2008 conference call and were reconfirmed and/or clarified in the January 28, 2009 IAC call. The planning assumptions pertinent to the 8-hour ozone conformity for the Ashland Area are consistent with the PM<sub>2.5</sub> analyses and are summarized below:

- The IAC agreed to use analysis years 2009, 2018, 2025 and 2035. They satisfy the regulations for the 8-hour ozone standard since, 2018 is the budget year, 2035 is the last year of the plan and analysis years are no more than 10 years apart. These years also satisfy the requirements for the joint PM<sub>2.5</sub> analysis with KYOVA.
- The IAC agreed to use the average July minimum and maximum ambient daily temperatures of 64.0 and 95.0 degrees Fahrenheit.
- The IAC agreed to use Fuel RVP of 9.0 pounds per square inch (psi).
- Having no data to indicate otherwise, the Ashland Area will use the MOBILE 6.2 default of 75 grains/lb. for absolute humidity.
- There is no Inspection/Maintenance program in this area. There are no Transportation Control Measures (TCM's) in the SIP (there is no PM<sub>2.5</sub> SIP) so implementation of the projects in the STIP will not interfere with timely implementation of TCM's.
- In the event that TCM's are introduced in the SIP later, implementation of those measures will not be impacted.
- All regionally significant projects, even those that are not federally funded, are included in the regional emissions analysis. These projects are listed in Appendix C Section 1. As a note, the only new capacity adding project in the Ashland Area is project 09-8400 to widen US-60 from 2 to 4 lanes from the I-64 at interchange 181 northerly to KY-180 at Cannonsburg. The project is slightly less than 4 miles in length and has been included in the travel demand model.

## PLANNING ASSUMPTIONS FOR THE TRAVEL DEMAND MODEL (TDM)

The planning assumptions for the travel demand model (TDM) were agreed to by the IAC in the September 10, 2008 conference call and are described below:

In conjunction with KYTC, FIVCO developed the 2035 long range plan project list – see Appendix D Section 1. In the January 28, 2009 interagency conference call, the IAC approved the exempt/nonexempt status as stated. The nonexempt projects in the project list were added to the TDM and model runs for Boyd County were made for the analysis years above. These were true model runs and not interpolated model results. VMTs and average daily speeds were determined as discussed below.

## BOYD COUNTY VMT FORECASTS

Daily vehicle miles traveled (DVMT) for Boyd County for each of the twelve Highway Performance Monitoring System (HPMS) highway functional classes for each of the analysis years were determined from the recently updated regional travel demand model (TDM) detailed in the report by The Corradino Group, “Ashland Travel Model”, December, 2002 . This TDM is described in more detail in Section 4 of the proposed 2035 LRTP. Freeway ramp percentages specific to the Ashland area were determined from the TDM. The rural and urban differences in the Ashland area are taken into consideration in the air quality analysis. The IAC agreed that the average daily speeds as determined by the UK Speed Study<sup>1</sup> were more accurate than those determined from the TDM since the TDM is not calibrated for speeds. Boyd County speeds for analysis year 2009 were determined using the UK Speed Study and 2007 HPMS data specific to Boyd County. While the speeds from the TDM are not necessarily reflective of actual conditions, the TDM does reflect the relative degree of congestion. The TDM results indicate relatively little congestion in 2009 and 2018. Thus, the speeds for 2009 and 2018 were assumed to stay the same. However, the TDM indicates that there will be congestion in 2025 and 2035 on the urban principal arterials causing a reduction in speed of 25% and 40%, respectively. Thus the 2025 and 2035 speeds for urban principal arterials were reduced accordingly from the 2009 value. While the TDM indicated congestion and a reduction in speed for 2035 for the rural interstates, it was decided to take the conservative approach and use the higher 2009 speed for all analysis years.

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<sup>1</sup> Chen, M., Gong, H. (2005) *Speed Estimation for Air Quality Analysis*, KTC-05-07/PL5-03-1F, Kentucky Transportation Center.

## **LAWRENCE COUNTY VMT FORECASTS**

VMT forecasts for the nonattainment portion of Lawrence County were determined in the following manner: First, using the latest traffic count data (2006) from the Kentucky Highway Information System (HIS), VMT were determined for the specific roadways in the designated portion of Lawrence County, Kentucky - U.S. census 2000 block group identifier number 21-127-9901-6. The state roads in this area are shown on the map in Appendix D. Local mileage and VMT were calculated from the HIS data base, but are not depicted on the map. Future years VMT were estimated by using the Lawrence County projected VMT annual growth rate (taken from KYTC's County Level VMT forecasts). The DVMT and associated emission factors are displayed in Appendix D.

The fiscal constraint is demonstrated and documented in the ASHLAND AREA MPO and KYOVA PM<sub>2.5</sub> conformity documents attached.

## **EMISSION CALCULATIONS**

Emission factors were determined using MOBILE 6.2 and the defaults and assumptions as described previously. The MOBILE 6.2 input and output data as well as emission inventory calculation spreadsheets are found in Appendix D.

## **INTERAGENCY CONSULTATION**

Interagency consultation was discussed above.

## **PUBLIC PARTICIPATION PROCESS**

The public participation process used by ASHLAND AREA MPO conforms to the adopted public involvement process. The Public Involvement Process documentation is available upon request. Any comments specific to the 8-hour ozone analysis are included in the conformity documentation.